

## WHAT IS CLAIMED IS:

1. A plasma processing apparatus comprising:
  - a chamber having at least one opening and for generating plasma;
  - a dielectric member provided to cover the opening air-tightly;
  - at least one wave guide provided in the exterior of the chamber such that one end side thereof opposes the dielectric member;
  - an electromagnetic wave source provided on the other end side of the wave guide;
  - a plurality of holes provided on a plane opposing the dielectric member of the wave guide; and
  - hole area adjusting means provided in at least one of the holes so as to adjust the opening area of the hole.
2. A plasma processing apparatus according to claim 1, wherein the hole having the hole area adjusting means has a larger hole area than the areas of the other holes.
3. A plasma processing apparatus according to claim 2, wherein the hole having the largest hole area is located on the terminal end side of the wave guide.
4. A plasma processing apparatus according to claim 1, wherein the wave guide includes a plurality of wave guides.
5. A plasma processing apparatus according to claim 1, wherein at least one of the holes is located near the periphery of the dielectric member.
6. A plasma processing apparatus according to claim 1, wherein the wave guide has a rectangular cross-sectional shape, the hole has four sides of a rectangle-like shape, the dielectric member has four sides of a rectangle-like shape, and wherein the long sides of the hole are parallel to one side of the dielectric member close thereto.
7. A plasma processing apparatus according to claim 1, wherein the hole area of the hole on the side wall surface side of the chamber is made the largest, and

wherein the hole is provided with the hole area adjusting means.

8. A plasma processing apparatus according to claim 1, wherein the hole area adjusting means is provided with a metal plate-like portion so as to adjust the opening area of the hole by reciprocating the plate-like portion.

9. A plasma processing apparatus comprising:

a chamber having at least one opening and for generating plasma;

a dielectric member provided to cover the opening air-tightly and having four sides of a rectangle-like shape;

at least one wave guide having a rectangular cross-sectional shape and provided in the exterior of the chamber so as to oppose the dielectric member;

a plurality of holes provided on a plane opposing the dielectric member of the wave guide; and

wherein the area of the hole on the side of the chamber wall surface is made larger than those of the other holes.

10. A plasma processing apparatus comprising:

a chamber having at least one opening and for generating plasma;

a dielectric member provided to cover the opening air-tightly and having four sides of a rectangle-like shape;

at least one wave guide having a rectangular cross-sectional shape and provided in the exterior of the chamber so as to oppose the dielectric member;

at least one hole having four sides of a rectangle-like shape and formed in the wave guide and provided to oppose the dielectric member; and

wherein one side of the hole is parallel to one of hole is parallel to one side of the dielectric member.

11. A plasma processing apparatus according to claim 10, comprising at least one hole located near one of two sides adjoining each other of the dielectric member and at least one hole located near the other of the two sides, wherein the long sides of the hole located near the one of the two sides are parallel to the one, and wherein the long sides of the hole located near the other of the two sides are parallel to the other.